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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,304	01/15/2002	Andrew Sung-On Ng	2345-PAT	1290

7590

09/03/2003

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,304

Applicant(s)

NG ET AL.

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the non-provisional application 10/045304 was filed more than one (1) year from the effective filing date of the provisional application 60/257352. Accordingly, the benefit for domestic priority is not granted.

Drawings

2. The sheets of drawings filed on 01/15/02 have been accepted.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The disclosure is objected to because of the following informalities: the specification contains no description of Figures 2 and 3 per se. In that, it is noted that the specification only contains descriptions of Figures 2a-b and 3a-b. Appropriate correction is required.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Fan et al US 2003/0134203.

The instant application is directed to an electrode assembly wherein the claimed inventive concept comprises the specific electrode configuration.

Fan et al disclose the following (SECTIONS 0059/0060):

[0059] FIG. 9 depicts a cylindrical embodiment of the disclosed device 10 wherein the electrodes would both be formed on elongated planar film structure in the same fashions and using any of the same combinations described above in FIGS. 1 through 3a, only in an elongated fashion for rolling, while leaving one edge 40 and 42 of each of the first electrode and second electrode respectively uncoated along an entire edge, if the actives are coated as above, to provide a current collector edge for communication of current from the elongated electrodes formed in the above referenced fashion to and from the electrodes. Any of the above referenced film and electrode combinations could be used depending on the end use of the device and would provide the benefit of fire retardance and obviating the need to charge the battery before sale or storage.

[0060] FIG. 10 depicts a prismatic embodiment the device featuring stacked electrodes and separators which would be placed inside a rectangular case and with one edge 40 and 42 of each formed electrode uncoated to function as a current collector and to communicate electrical current to and from the electrodes. Any of the above referenced film and electrode combinations could be used depending on the end use of the device and would provide the benefit of fire retardance and obviating the need to charge the battery before sale or storage.

Figures 9-10 below depict the rolled and stacked electrode assembly comprising the electrodes, the separator and the communication means:

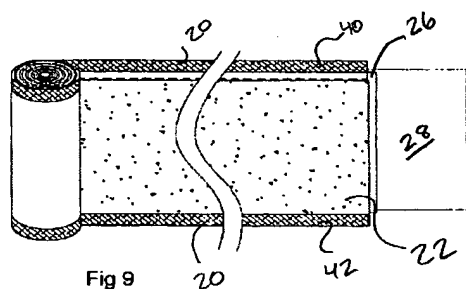


Fig 9

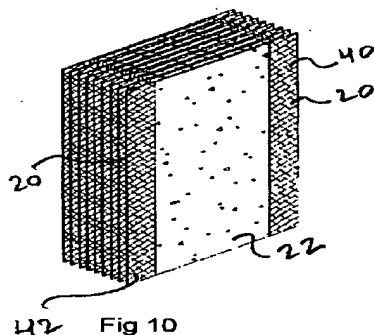


Fig 10

Thus, the claims are anticipated.

7. Claims 1-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneda et al US 2003/0129494.

Kaneda et al disclose the following (SECTIONS 0087, 0089 & 0121):

[0087] LiCoO_2 having an average particle size of $10\text{ }\mu\text{m}$ as a positive electrode-active material, scale form graphite having an average particle size of $5\text{ }\mu\text{m}$ as a positive electrode electroconductive material, PVDF as a binder and a $20\text{ }\mu\text{m}$ -thick Al foil as a positive electrode current collector were used. A mixture of LiCoO_2 , scale form graphite and PVDF in a ratio of 88:7:5 by weight was mixed with N-methylpyrrolidone to prepare a slurry of positive electrode mix. The slurry was applied to both sides of the Al foil, followed by vacuum drying at 120°C . for one hour, and successive press molding into an electrode piece by a roller press. Then, a strip, 40 mm wide and 285 mm long, was cut out of the electrode piece to prepare a positive electrode, where the Al foil was exposed in 10 mm-long, positive electrode mix-uncoated regions at both edges of the positive electrode. A Ni positive electrode tab was pressure welded to one end of the positive electrode by ultrasonic welding.

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[0089] Said negative electrode-active material, scale-formed natural graphite having an average particle size of $10\text{ }\mu\text{m}$ as a negative electrode electroconductive material, carbon fibers having an average particle size of $0.2\text{ }\mu\text{m}$ and an average length of $30\text{ }\mu\text{m}$, PVDE as a binder and a $20\text{ }\mu\text{m}$ -thick Cu foil as a negative electrode current collector were used. A mixture of the negative electrode-active material, scale-formed graphite, carbon fibers and PVDF in a

ratio of 55:30:5:10 by weight was mixed with N-methylpyrrolidone to prepare a slurry of negative electrode mix. The slurry was applied to both sides of the Cu foil, followed by vacuum drying at 120°C . for one hour and subsequent press molding into an electrode piece by a roller press. Then, a negative electrode, 40 mm wide and 290 mm long, was cut out of the electrode piece, thereby preparing the negative electrode. A ratio of the applied negative electrode mix to the applied positive electrode mix was 1:4.2 by weight. The Cu foil was exposed in 10 mm -long, negative electrode mix-uncoated regions at both edges of the negative electrodes. A Ni negative electrode tab was pressure welded to one end of the negative electrode by ultrasonic welding.

[0121] On the other hand, the negative electrode mix was applied to both sides of a $10\text{ }\mu\text{m}$ -thick copper foil, followed by vacuum drying at 120°C . for one hour. Then, the resulting electrode foil was press molded to a thickness of $175\text{ }\mu\text{m}$ by a roller press. An amount of the applied mix per unit area was 5 mg/cm^2 , and a negative electrode was prepared by cutting the electrode foil to a size, 40 mm wide and 290 mm long. As with the positive electrode, the copper foil was exposed in the negative electrode mix-uncoated, 10 mm -long regions at both edges of the negative electrode, and a negative electrode tab was pressure welded to one end of the negative electrode by ultrasonic welding.

Figures 1-3 and 6 below depict the rolled and stacked electrode assembly comprising the electrodes, the separator and the communication means:

FIG. 1

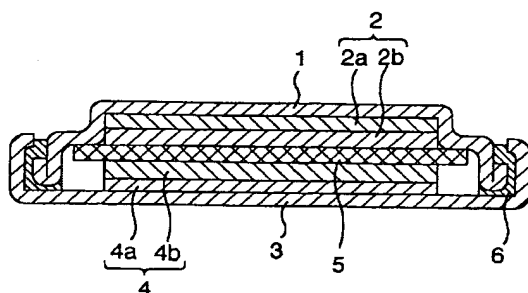


FIG. 2

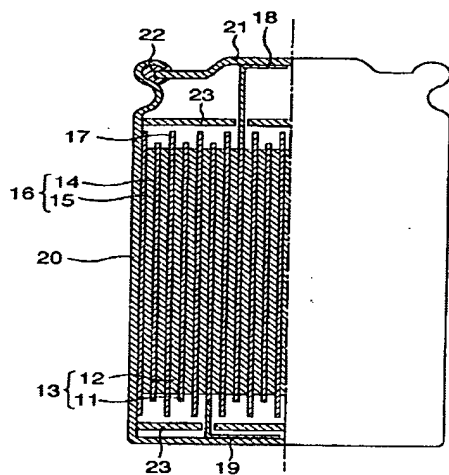


FIG. 3

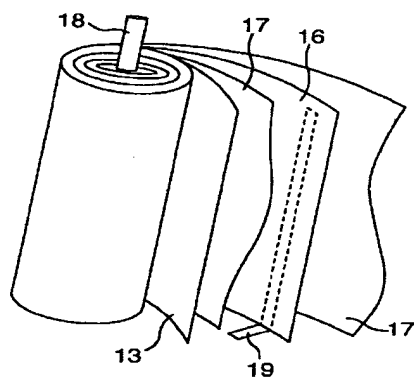
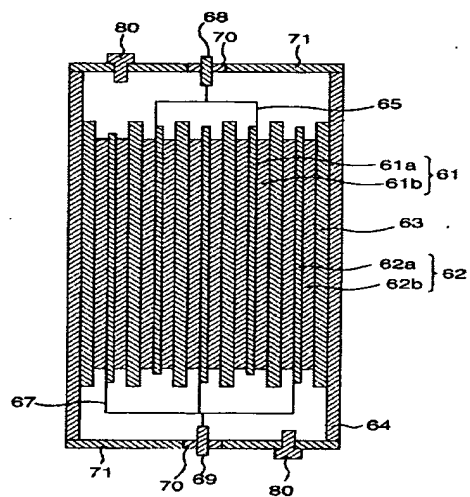


FIG. 6



Thus, the claims are anticipated.

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8. Claims 1-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakanishi et al US 2002/0142211.

Nakanishi et al disclose the following (SECTIONS 0103, 0116 & 0147):

[0103] The positive electrode 23 and the negative electrode 21 are each superposed on the separator 22 as displaced widthwise thereof and are rolled up into a spiral form, whereby an edge (uncoated portion 25) of the rolled-up negative electrode 21 is positioned as projected outward beyond the edge of the separator 22 at one of opposite ends of the electrode unit 2 in the direction of its winding axis, and an edge (uncoated portion 27) of the rolled-up positive

electrode 23 is positioned as projected outward beyond the edge of the separator 22 at the other end of the unit 2.

[0116] The positive electrode 23, separator 22 and negative electrode 21 are thereafter laid over one another and rolled up into a spiral form as shown in FIG. 4 to obtain a rolled-up electrode unit 2. At this time, these components are arranged in layers so that the edges of the positive electrode uncoated portion 27 and the negative electrode uncoated portion 25 are positioned as projected outward beyond the respective edges of the separator 22.

[0147] The positive electrode 71 and the negative electrode 73 are each superposed on the separator 72 as displaced widthwise thereof to position the uncoated portions of the positive electrode 71 and the negative electrode 73 as projected outward beyond the respective edges of the separator 72. The components are rolled up into a spiral form to obtain an electrode unit 7. In this rolled-up electrode unit 7, the current collector edge 78 of uncoated portion of the positive electrode 71 is positioned as projected outward beyond one edge of the separator 72 at one of opposite ends of the electrode unit 7 in the direction of its winding axis, and the current collector edge 78 of uncoated portion of the negative electrode 73 is positioned as projected outward beyond the other edge of the separator 72 at the other end of the unit 7.

[0148] Current Collecting Structure

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Figures 1, 4 and 9 below depict the rolled and stacked electrode assembly comprising the electrodes, the separator and the communication means:

FIG.1

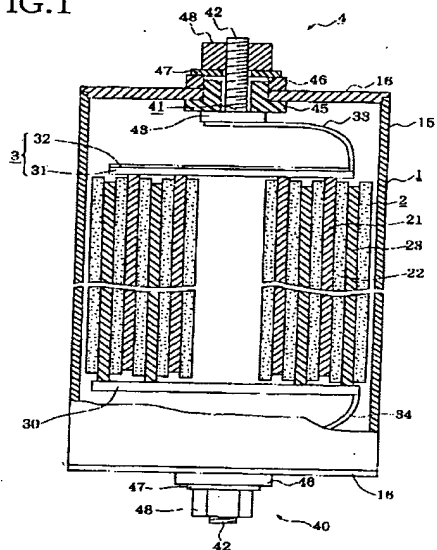


FIG.4

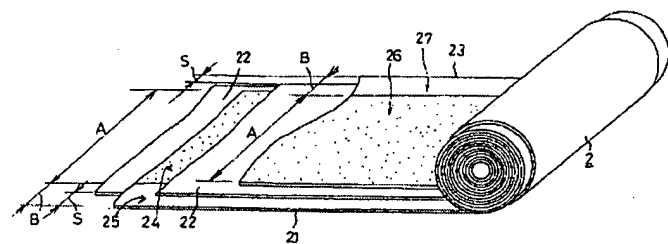
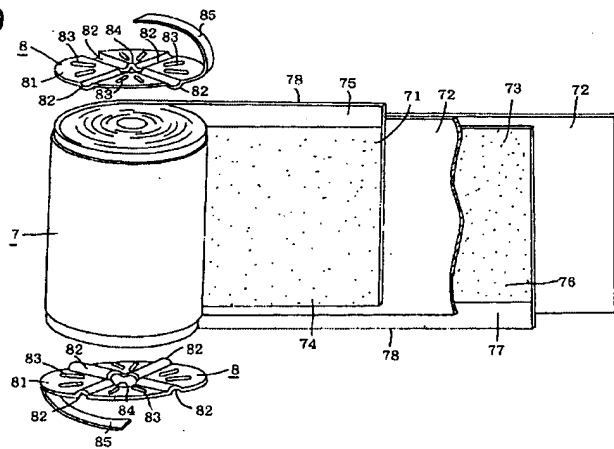


FIG.9



Thus, the claims are anticipated.

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9. Claims 1-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al 6040086.

Yoshida et al disclose the following (Col 3, line 49-Col 4, line 10/Col 5, lines 1-21):

For the negative electrode, a carbon material (graphite) powder which can be doped with lithium or release lithium was used. 90% by weight of graphite powder and 10% by weight of PVDF as a binder were mixed to obtain a negative A-5 electrode compound. To the negative electrode compound thus obtained was then added N-methyl-2-pyrrolidone as a solvent. The mixture was then kneaded to obtain a slurry. A belt-like copper foil having a thickness of 20 gm was prepared as an electrode plate substrate. The foregoing negative electrode compound slurry was applied to the substrate, and then dried. The coated material was then passed under a rolling press machine to adjust its thickness to 200 μ m to prepare a negative electrode plate having a length of 9,900 mm and a width of 172 mm. The electrode plate has an uncoated portion having a width of 10 mm at a longitudinal side edge thereof similarly to the positive electrode plate.

The positive and negative electrode plates thus prepared were then spirally wound with a separator 7 made of a

microporous polyethylene film provided interposed therebetween and a core 8 made of a polyethylene terephthalate pipe provided at the center of the spiral in such an arrangement that the side edge (uncoated portion 4) of one of the electrode plates protrudes from the side edge of the other as shown in FIG. 3 to obtain a cylindrical power-generating element. In FIG. 3, the reference numeral 5 indicates a positive electrode plate, and the reference numeral 6 indicates a negative electrode plate.

A positive electrode 5 and a negative electrode 6 were prepared in the same manner as in Example 1 of the present invention. The positive electrode 5 and the negative electrode 6 were arranged such that the side edge (uncoated portion 4) of the positive electrode 5 and the negative electrode 6 are positioned at the opposite sides, respectively, and then spirally wound with a separator 7 made of a microporous polyethylene film provided interposed therebetween and a core 8 made of a polyethylene terephthalate pipe provided at the center of the spiral. During this step, positioning was effected. 50 terminals 2 were ultrasonically welded to the positive electrode and the negative electrode, respectively. In some detail, each time the electrodes were wound by several turns, the rotation of the core was suspended, and a terminal 2 was welded to the electrodes. The electrodes were then wound until the subsequent terminal position was reached. This procedure was then repeated until 50 terminals were welded to the positive electrode and the negative electrode, respectively. The periphery of the coil thus wound was fixed with a tape 9. The coil was then pressed to form a power-generating element having an ellipsoidal section (see FIG. 9).

Figures 3-7, 8a-d and 9 depict the rolled and stacked electrode assembly (in particular, **Fig. 3-5, 7 and 8B below**) comprising the electrodes, the separator and the communication means:

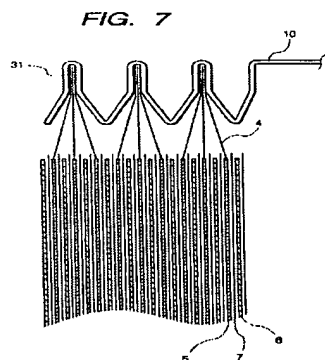
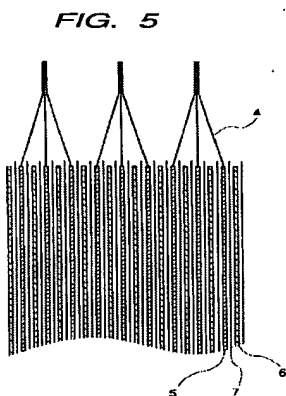
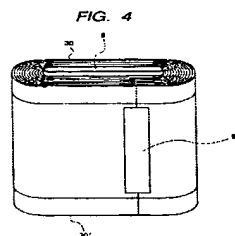
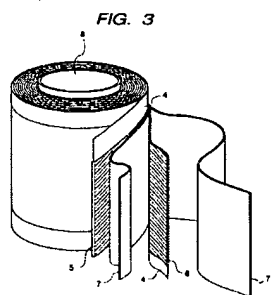
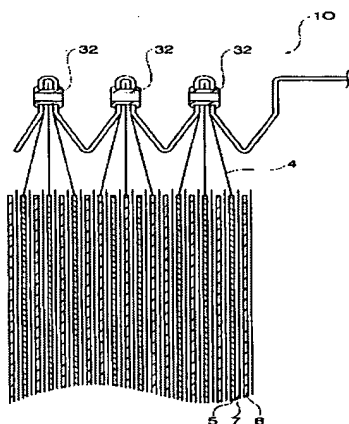


FIG. 8B

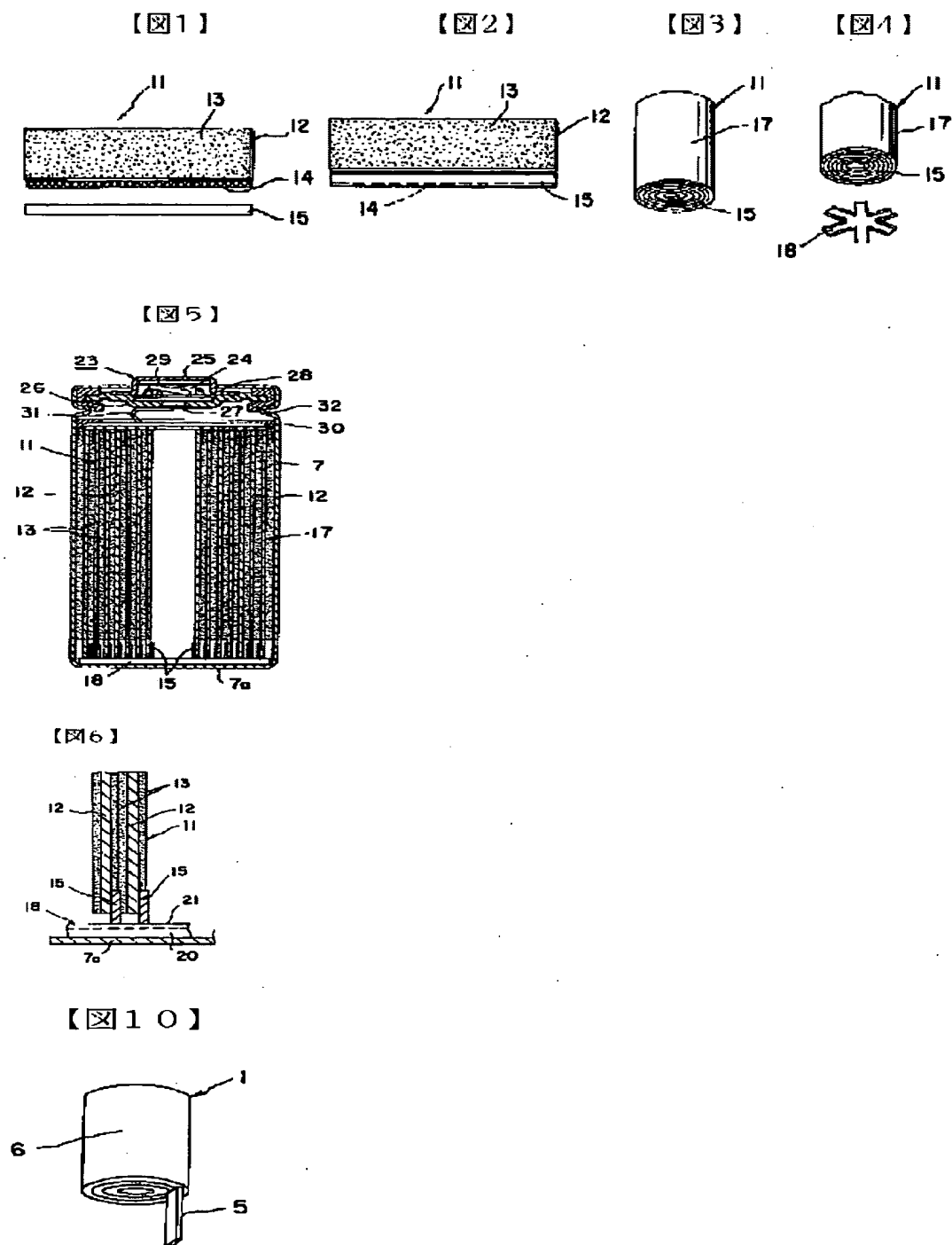


Thus, the claims are anticipated.

10. Claims 20-28 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese publication 2000-299100.

The JP'100 publication discloses a rectangular conductive porous substrate 12 of the electrode plate 11 for a storage battery which is filled and coated with a pasty material 13 containing an active material, an uncoated end edge part 14 is left along one longitudinal side thereof (ABSTRACT). After drying and rolling of the pasty material 13, an elongate belt-shaped long sideways current collecting tab 15 (communicating means) is continuously connected to the uncoated end edge part 14 (ABSTRACT). When the electrode plate 11 for the storage battery having such a structure is cylindrically wound, the wound current collecting tab 15 projects from the cylindrical electrode plate 11. The cylindrical electrode plate 11 having the current collecting tab 15 projecting from its bottom face is installed into a battery can with a disk-like collector interposed between the current collecting tab 15 and the bottom wall of the battery can (ABSTRACT).

Figures 1-6 and 10 depict the rolled electrode assembly comprising the electrodes, the separator and the communication means:



Thus, the claims are anticipated.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
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A handwritten signature in black ink, appearing to be 'RAM', with a long horizontal flourish extending to the right.